IN THE TITLE:

Change the Title, wherever it appears, the Declaration excepted, to -- Apparatus and Method for Measuring the Heating Value of Gases --.

IN THE SPECIFICATION:

Please amend the specification as follows.

From page 2, line 23, to page 4, line 12, of the specification:

- - The drawbacks of the instruments described above are substantially reduced and precise measurement of the heating value of gases is attained by a relatively technically simple instrument when using ~~heating value meter for gases~~ apparatus for measuring the heating of gases according to the present invention ~~that consists of~~ comprising an outer mantle with thermostatically controlled heating and at least one inlet for air and one inlet for the test gas, and of a measuring block located inside the outer mantle, where the principle of ~~the meter~~ this apparatus lies in the fact that the outer mantle is cylindrical and provided with a heating mantle on its outside surface, and that its bottom part contains an axially placed outer sensor of an electrical ~~long-distance~~ remote thermometer of the outer thermostatic apparatus, and~~, simultaneously,~~ the measuring block is also cylindrical, with an axially placed through-hole, it is placed coaxially inside the outer mantle and it is provided in the upper part with an axially-inserted heating block and in the bottom part with an axially-inserted internal sensor of an electrical ~~long-distance~~ remote thermometer of the internal thermostatic apparatus, while the heating mantle and the outer sensor and the electrical heating block and the internal sensor are ~~simultaneously~~ interconnected ~~across~~ via the internal and external thermostatic apparatus adjusted for maintaining a constant temperature by regulating the input of the electrical heating block or of the input of the heating mantle ~~where a meter~~ wherein the measuring apparatus of the ~~electric~~ electrical input is also connected to the electric lead of the electrical heating block. It could be advantageous when both the outer mantle and the measuring block of ~~the meter of the heat of combustion~~

apparatus for measuring the heating of gases are made of a metallic material, with especial advantage of an alloy based on copper or aluminium. It is also advantageous when there is a gap between the outer surface of the measuring block and the internal surface of the outer mantle, wherein ~~with~~ a width of the gap equals ~~equal~~ to 0.3 to 3.0 multiple of [[fold]] the outer diameter of the measuring block. It is also an advantage if the overall cross-section of the outlets of the flue gases equals 1.1 to 2.0 multiple of [[fold]] the overall cross-section area of the air inlets. It is further advantageous if there are at least two air inlets in the outer mantle and if they are directed at an angle and/or are diverging from the longitudinal axis of the measuring block. It is advantageous, too, if the electrical heating block and/or the internal sensor are placed closer to the circumference of the measuring block than to its axial through-hole. It is also advantageous if a cavity is created or a shielding body, made of a thermally insulating material, is placed between the electrical heating block and/or the internal sensor, and the axial through-hole. Finally, it may be advantageous if the internal thermostatic apparatus is adjusted for regulation of the electrical input to the electrical heating block within a range from 5 to 50% of the heating ~~capacity~~ input of the calibration gas being combusted in the meter. Another principle underlying the invention is the mode of operation of the meter, or a method for measuring the heating of gas, that involves first a calibration stage consisting of feeding [[the]] a calibration gas with an exactly known heating capacity to the meter and of its combustion, followed by measurement of the temperature of the internal sensor and storage of the value in the memory of the measuring apparatus, and subsequently a measuring stage in which the test gas is introduced into the meter and combusted while the measuring apparatus measures the electrical input to the electrical heating block, the internal thermostatic apparatus

maintains the measuring block temperature, measured at the internal sensor, at the same values as those obtained and stored in the memory during the calibration stage, and the value of the heat of combustion of the test gas is determined from the difference between the value of the heating capacity of the calibration gas and that of the electrical heating block, maintaining the temperature of the outer mantle at the ~~same and~~ constant value during the calibration and measuring stage. It is favourable to repeat the calibration stage every 30 to 300 minutes. - -

From page 4, line 29, to page 5 of the specification:

- - The meter 1 consists of the outer mantle 10 provided with the heating mantle 101, here designed as an electrical resistor heating mantle, with the measuring chamber 11 placed inside the outer mantle 10. The outer mantle 10 is an aluminium cup-shaped case closed with a lid at the bottom. A rather schematic view, presented here as Fig.1, shows the outer mantle 10 as a closed container, where no separate lid is apparent, but in practice it would be constructed as a case, closed with a lid at the bottom. The bottom lid, or a bottom part, contains the air inlets 103 for air and gas inlets 105 for the test gas or for a calibration gas. The present example has two inlets 103 for introduction of air, perpendicular to the lid plane and between them, in the middle of the lid, there is the gas inlet 105 for introduction of the test or calibration gas, which gas inlet 105 is parallel with the air inlets 103. The outer temperature sensor 102 is placed axially at the bottom edge of the cup-shaped case of the outer mantle 10. The outer temperature sensor 102 is connected to the outer thermostatic apparatus 2 which is further connected to the heating mantle 101. The outer thermostatic apparatus 2 also contains an electric energy source, or can be connected to an external energy source

which is not depicted here. The centre of the upper part of the outer mantle 10 contains the outlet 104 for the flue gases, the ratio between the cross-section area of the outlet 104 for the flue gases and the overall cross-section area of the air inlets 103 being 1.3, while the gap between the outer surface of the measuring block 11 and the internal surface of the mantle 10 equals the outer diameter of the measuring block 11. The measuring block 11 is designed as a hollow cylinder made of aluminium, where the axial through-hole 113 in the measuring block 11 has a diameter corresponding to that of the outlet 104 for the flue gases and is directed at the top toward the outlet 104 for the flue gases. In the axial direction, close to the axially directed hole 113, the thermally insulating holes 114 are made in the bottom and top planes of the measuring block 11, while the hole containing the internal temperature sensor 112 is made in the bottom plane in the same direction but closer to the outer circumference of the measuring block 11 and the hole containing the electrical heating block 111 is made in the upper plane. The internal temperature sensor 112 is interconnected with the internal thermostatic apparatus 3 that is further connected, via the measuring apparatus 31 of the electrical input, to the electrical heating block 111. The measuring apparatus 31 is then connected to the evaluating and control unit 4 that is based on a computer and is simultaneously connected to the first dosing unit 41 for the calibration gas and the second dosing unit 42 for the test gas. - -

On page 6, lines 1-25, of the specification:

- - The equipment according to the invention operates as follows. First, the calibration stage takes place, i.e., the calibration gas with a precisely known heating capacity, or heating value, is introduced into the meter 1 and is combusted in it, followed

by measurement of the temperature at the internal sensor 112 and the storage of the value in the memory of the measuring apparatus, and then the measuring stage takes place, involving introduction of the test gas into the meter 1, its combustion in the meter, with measurement of the electrical input to the electrical heating block 111 by the measuring apparatus and simultaneous maintaining, by the thermostatic apparatus 3, of the temperature of the measuring block 11 measured at the internal sensor 112 at the same value as that determined and stored in the memory during the calibration stage; the value of the heat of combustion of the test gas is then determined from the difference between the value of the heating capacity of the calibration gas and that of the heating capacity of the electrical heating block, while the temperature of the outer mantle 10 is maintained at ~~the same and~~ a constant value, by means of temperature measurement using the outer sensor 102 and subsequent regulation of the heating capacity of the electrical heating block 111, with regulation by the outer thermostatic apparatus 2. The calibration stage is repeated every 30 minutes during the measuring process, while 6 measurements of the heat of combustion value of the test gas are carried out per hour which, in view of the present requirements, can be considered to be continuous measurement. The equipment described above permitted measurements with a precision characterized by deviations not exceeding 1% from the precise value of the heating value verified by laboratory measurements and by control with other calibration gases. - -